

SBARA President's Corner..... Starting on Page 2.

Why does the antenna length vary for the same resonant frequency?

All of us know the formula: $468 / F \text{ Mhz} = \text{Length (in feet)}$ of a $\frac{1}{2}$ lambda (wave length) `dipole.....but that typically isn't correct. Sometimes the length needs to be shorter, sometimes longer. It really depends on the environment into which we place the antenna. Is it close to the earth, close to the house, close to power lines or close to the chain link fence? Or is it far away from everything? $468 / F \text{ MHz}$ gets us in the ballpark for the $\frac{1}{2}$ wl length, but be prepared to vary the length (tune it) to obtain the resonant frequency desired at the physical location you place it.

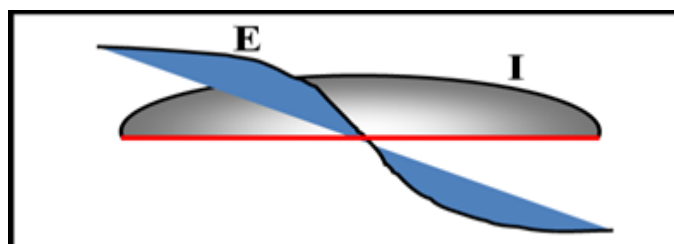
Why does the feed impedance (ZL) change depending on where it is fed?

Another issue with basic dipole antennas is the feed Impedance -- ZL. Between 50 and 75 ohms is the feed impedance range of a dipole. These values are measured at the center of the dipole, which is where we typically feed (connect) the feedline/coax. If you feed it with coax, you want it to be close to a 50 ohm feed Z, for sure. We can, however, feed a dipole anywhere we wish to feed it. Some are fed $\frac{1}{3}$ a way from the end -- often called an Off Center Fed Dipole or OCFD. (*Note: some call this a Windom -- it is not -- Google Windom Antenna*)

You can feed the dipole at the end, which is the highest impedance point on an antenna. The LNR Precision 'Par EndFedz ®' are good examples of this.

Why does the feed Z vary on an antenna as you go from the center to the end? Look at the diagram below.

This shows the standing waves of Voltage E and Current I on a $\frac{1}{2}$ wave dipole. If at any point we take the voltage and current and calculate Resistance R using Ohms Law $R = E/I$, you will get a low Resistance in the middle (low voltage/ high current) and an ever increasing impedance as you move the feed point out to the end where you will measure a high impedance (high voltage/low current).



Why does all this matter? Because, the lowest SWR is found when the antenna is resonant (no matter where it is fed or how it is fed) and if you use coax you want to have a fairly close match to the coax cable Z_0 (surge Z or characteristic Z) to avoid loss. Second, you want to feed the antenna at a place that matches your feedline Z_0 . With 50 or 75 ohm coax you would feed it at the center. With 450 ohm ladder line, feed it at the $\frac{1}{3}$ length point, and by using a matching section or parallel circuit (a tank) you can feed it at the high impedance end.

Membership meeting at 7:30 PM this Friday, March 14th. Meetings are held at Hurricane Electric on Mission Court off Warm Springs Blvd. We meet for a 6:00 PM pre-meeting dinner at Ho Chow Restaurant, On Warm Springs Blvd at Gable Drive. Check the SBARA website for addresses and details.

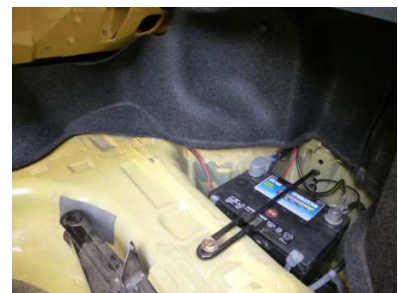
In last month's Groundplane, I wrote about how Ham Radio has so many facets to get involved in. One facet is mobile operation. That facet alone has many components that may pique your interest. Many people in the hobby start with a mobile rig to help the commute time pass more quickly...or at least more pleasantly. Sometimes, the DIY (do it yourself) aspect of the hobby appeals to the ham. I thought I would share my experience with installing two mobile rigs.

In July of 2001, I received my Technician Class license. In 2003, after having a Miata for a little over a year, I finally felt comfortable installing a vhf/uhf mobile rig. I have always enjoyed installing car stereos, over the years, so I felt comfortable tackling the job on my own. The Miata presented some benefits



and some small challenges. First off...it was critical for me to not detract from the lines of the car with the antenna. I decided on a small trunk lip mount and started with a short whip antenna (Comet SBB2 18" 2M 2.15 dBi 1/4 wave), which seemed to work well enough with the local repeaters. I would keep a longer antenna (Comet SBB5 38" 2M 3.0 dBi 1/2 wave), with more gain, in the trunk. But I finally realized that it just wasn't worth the hassle of changing the antennas, so I decided to just leave the longer antenna on all the time.

In an effort to evenly distribute the weight in the Miata, Mazda chose to locate the battery in the right, rear of the trunk. This location made it really easy to hookup the radio, as I wouldn't need to worry about running power wires through the firewall from the engine compartment. This also was a convenient location, as I chose to use



the separation kit, for the Yaesu FT-8800R dual band radio, and install the radio in an area just forward of the trunk. All I had to do was run two wires from the trunk to the cockpit...one for the speaker and one for the head unit. I chose to mount the speaker between the seats, closer to my ears, to help being able to hear it in noisy conditions. I mounted the head unit underneath the dash, to the left of the steering

wheel. You can just read the face through the spokes of the steering wheel. I removed the cover over the transmission tunnel and ran the data cable from the trunk up to the head. Rather than screw the mic holder into the tunnel, I chose to use heavy duty Velcro so I could





remove it if I ever chose to sell the car. The setup isn't perfect, but it has served me well.

Just recently, I decided that it would be fun to install an HF rig into my 2003 Montero SUV. I work from home most of the time, so I wasn't looking for something to use for commuting. But I thought it would be fun for long trips or camping. I chose the Yaesu FT-857D for the rig. This install did require running cables from the battery,

through the firewall, into the interior. One thing that some of us learn, as we age, is which projects we should tackle and which projects we should leave to the experts. I chose to have someone else run the power cables for me, while the SUV was at



a body shop for repairs. Once again, I chose to leverage the separation kit. I mounted the main radio unit under the passenger seat and grounded it to one of the seat screws. I used the hook side of some stick-on Velcro to secure the radio bracket to the carpet. This keeps it from moving around, yet allows for easy removal. I terminated the power cable, under the center console, with Anderson power poles. I also wired in a secondary power cable to be used for a second

radio or the Doppler unit for t-hunting. The speaker is mounted with Velcro, so I can move it under the seat when not in use. There was a convenient cavity, in the front console, to mount the head unit. I cut a piece of 2x4 with slightly angled ends that would wedge into the

console. since it tapered toward the back. I painted the 2x4 black and mounted the plastic mounting bracket to it. I then used a piece of black foam rubber to create a pressure fit for the 2x4 to keep it in place. I then ran the cable from the radio, through the center console, and up to the head unit.





As to antennas, I chose a small hatch back mount for the VHF/UHF (Comet SBB2 18" 2M 2.15 dBi 1/4 wave) antenna and mounted it on the top right. I chose a hatchback mount and the Little Tarheel II screwdriver antenna for HF. Fortunately, the plastic panels in the SUV were easy to remove to run the antenna cables to the rig. I used double-faced foam tape to mount the toggle switch to control the screwdriver antenna. Although I put an antenna analyzer on the antenna and labeled the various bands on the barrel of the antenna, I have learned to tune the antenna by listening for the noise floor to increase on the band I am tuning. This actually works quite well. My furthest contacts include Tokyo, Japan and Argentina. It's been fun to have on long trips, as I had hoped.

SBARA Weekly Nets—Voice and CW Action!!

The Slow CW Net

Every Thursday and Sunday night at 7:30 pm, Thursday on 144.230 MHz and Sunday on 7.057MHz +/- 3 kHz

You need an “all-mode” transceiver in order to participate in this Net.

The net has now its own email address. Please contact us here:

“SF Bay CW Enthusiasts” <sf-bay-cw-enthusiasts at googlegroups.com>

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Bernhard AE6YN

Monday SBARA Net

The SBARA net is take place....Every Monday night at 7:30 pm on the WA6PWW repeater, 147.015 MHz, positive off-set, PL (if enabled) 103.5 Hz.

Topics are club related things, projects you're working on and so on. It's a chat net. We need net control operators. If you'd like to be net control, let us know during the next net

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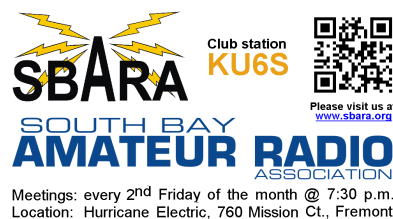
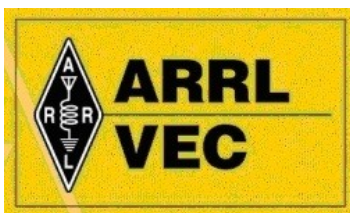
Bernhard AE6YN



SBARA VE Testing Schedule

Exam Dates are listed on the SBARA Website at: www.sbara.org and on the left-hand side of the vertical navigation listing and then select License Exams. All of the Exam dates are listed within this data window.

Exams will be administered at Hurricane Electric, 48233 Warm Springs Blvd., Fremont. Contact: Greg Miller, wy6p at arrl dot net for info. \$15 fee, bring a photo ID. Walk-ins allowed.



The Radio Amateurs Code

The Radio Amateur is...

CONSIDERATE... never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL... offers loyalty, encouragement, and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

PROGRESSIVE... with knowledge abreast of science, a well-built and efficient station and operation above reproach.

FRIENDLY... slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interest of others. These are the hallmarks of the amateur service.

BALANCED... radio is an avocation, never interfering with duties owed to family, job, school or community.

PATRIOTIC... station and skill always ready for service to country and community.

- - The original Amateur's Code was written by Paul M. Segal, W9EEA, in 1928.



OSCAR-11 Salute

OSCAR-11 has been in orbit for 30 years, and at least one beacon continues to transmit, albeit with a signal that grows ever weaker. Also known as UOSAT-2, OSCAR-11 was designed and built by a team at the University of Surrey in England. It was launched from Vandenberg Air Force Base in California on March 1, 1984. OSCAR-11 was the first amateur satellite to carry a digital communication package into Earth orbit. The satellite had beacons in three Amateur Radio bands -- 145 MHz, 435 MHz, and 2.4 GHz. Only the 145.826 MHz FM AFSK 1200 bps ASCII telemetry beacon remains in operation.



FIELD DAY 2014 JUNE 28TH AND 29TH. 2014 Field Day is Right Around the Corner

Field Day is right around the corner. Field Day is June 28th & 29th this year and we plan to be at Lake Elizabeth again. At the May meeting we will start to gather information about who will be there, Stations, Station Captains, etc. so start to think about what you want to do this year for Field Day. The 2014 rules have been published and we will have a copy for the meeting.



SBARA - Groundplane

The Groundplane is published monthly by the South Bay Amateur Radio Association. Articles and letters are always welcome. The normal deadline for material is the 25th day of each month for the next month's news-letter. Articles can be sent by email to hamradio at Comcast dot net or via U.S. Mail. Contact the Editor for details and submission guidelines.

March Action Packed Meeting

April 11th., 2014 at 7:30pm Hurricane Electric, Fremont

Amateur License Exams

ARRL VEC— May 10th., @ 9:00 pm at Hurricane Electric – 48233 Warm Springs Blvd. Fremont. Contact: Greg , ae6yn at arrl dot net for info. \$15 fee.

Additional information is described on our Website, www.sbara.org

Select License Exams from the Navigation URL.

Are you looking for your favorite Repeater? Here is information you can use!

WA6PWW — 147.015 + 600Khz, PL
103.5

WA6PWW —223.900—500Khz, PL
107.2

WA6PWW —442.600 +5Mhz, PL107.2

K6AIR—146.940—600Khz, PL 123.0

K6AIR—441.525 +5Mhz, PL 123.0

ARES Net Meeting —Tuesday Evenings
@ 7:30pm on 147.015+600Khz, PL
103.5